

In the Specification:

Please replace paragraph [0030] with the following paragraph:

A commonly encountered and typical representative example is the separation of hydrogen from methane. In the interests of clarity and simplicity, therefore, our process is described herein principally as it relates to hydrogen/methane separation. However, this is intended to avoid long and complicated long and complicated lists of equivalents whenever process streams are discussed, and is not intended to limit the scope of the process. Those of skill in the art will readily appreciate how to apply the process of the invention to other gas mixtures, such as hydrogen/ethane, hydrogen/carbon monoxide, carbon dioxide/methane, carbon dioxide/ethane, carbon dioxide/ethylene and hydrogen sulfide/methane, by following the exemplary teachings specific to hydrogen/methane that are given herein.

Please replace paragraph [0099] with the following paragraph:

Integral asymmetric membranes comprise an extremely thin, dense skin on a substructure of graded porosity, being very finely microporous adjacent to the skin and more openly porous in the underlying region. The phase-inversion process by which such membranes are made was originally developed by Loeb and Sourirajan to make reverse osmosis membrane membranes and is described in U. S. Patents Patent 3,133,132 to Loeb. The preparation of integral asymmetric membranes for gas separation is now conventional in the art and is described, for example, in 4,230,463 to Henis and Tripodi. Membranes of this type suitable for separating gas pairs from the list above may be made from a number of materials familiar to those of skill in the art, such as, but not limited to, polysulfone, cellulose acetate, polyamide, polyaramid, polyimide, polyetherimide, polyester, polycarbonate, polyvinylidene fluoride, polypropylene, polyethylene or polytetrafluoroethylene.

Please replace paragraph [0167] with the following paragraph:

The membrane, 10, is shown schematically in a basic embodiment in Figure 2, ~~and a comprises and comprises~~ a base membrane, 11, which has the ability to separate a pair of target gases, such as hydrogen and methane, or carbon dioxide and ethylene, and a C₃+ hydrocarbon-resistant coating, 12. The base membrane includes a selective layer, 14, that is principally responsible for the selective properties of the membrane with respect to the target gas pair and a support structure, 13. The selective layer may be the skin layer of an integral asymmetric membrane, or may be a layer of different chemical structure deposited or formed on an underlying support membrane.

Please replace paragraph [0191] with the following paragraph:

In addition to the layers shown in Figure 2, the membranes may optionally include other layers as already discussed with respect to the process embodiments, such as sealing layers, gutter layers and additional layers and additional selective layers.

Please replace paragraph [0217] with the following paragraph:

Hyflon® AD60 membranes were prepared as ~~in~~ ~~were prepared as in~~ Example 4 above and were tested with a gas mixture containing approximately 63% carbon dioxide, 27% methane, and 10% propane at 22 C at feed pressures ranging from 115 to 415 psia. The saturation vapor pressure of the gas mixture is about 915 psia; thus, at 415 psia, the mixture was about 45% saturated. The measured pressure-normalized gas fluxes are shown graphically in Figure 11. The calculated carbon dioxide/hydrocarbon selectivities are shown graphically in Figure 12.

Please replace paragraph [0243] with the following paragraph:

The flow rate of the raw off-gas was assumed to be 5 MMscfd, and the gas was assumed to contain 35% hydrogen, 5% nitrogen and 60% C₁-C₆ hydrocarbons, of which 15% were assumed to be C₃₊ hydrocarbons. The raw gas was assumed to be at 200 psia and 25 C. The permeate side of the membrane was assumed to be at 50 psia. The results of the calculations are summarized in ~~Table~~ Table 14.